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SYSTEM FOR CATEGORIZING AND DISPLAYING REPLY MESSAGES IN COMPUTER FACILITATED DISCUSSIONS

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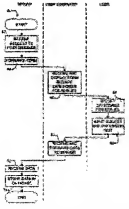
Abstract of WO 0119049 (A2)

A system for operating news groups or discussion groups requires a user who posts a message to specify two or more categories for reply messages. The system associates the categories with the message. The system requires a user who posts a reply to a message to categorize the reply into one of the categories. When the system displays a message thread the system displays messages in each category differently. In a preferred embodiment there are two categories and reply messages in a first one of the categories are displayed on a first side of a display and reply messages in a second one of the categories are displayed on a second side of the display. A user can see the general point of view of reply messages without reading the text of the reply messages. The system may be applied in a manner which permits users to see a graphical display which indicates which reply messages to a posting agree with the point of view expressed in the posting and which reply messages disagree with the expressed point of view.



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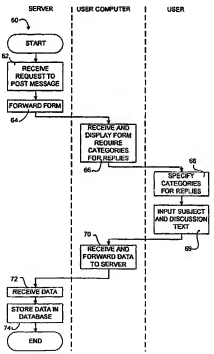
[Continued on next page]

(54) Title: SYSTEM FOR CATEGORIZING AND DISPLAYING REPLY MESSAGES IN COMPUTER FACILITATED DISCUSSIONS



(57) Abstract: A system for operating news groups or discussion groups requires a user who posts a message to specify two or more categories for reply messages. The system associates the categories with the message. The system requires a user who posts a reply to a message to categorize the reply into one of the categories. When the system displays a message thread the system displays messages in each category differently. In a preferred embodiment there are two categories and reply messages in a first one of the categories are displayed on a first side of a display and reply messages in a second

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one of the categories are displayed on a second side of the display. A user can see the general point of view of reply messages without reading the text of the reply messages. The system may be applied in a manner which permits users to see a graphical display which indicates which reply messages to a posting agree with the point of view expressed in the posting and which reply messages disagree with the expressed point of view.

SYSTEM FOR CATEGORIZING AND DISPLAYING REPLY MESSAGES IN COMPUTER FACILITATED DISCUSSIONS

Technical Field

This invention relates to computer discussion group and bulletin board systems. Such systems permit users to post messages expressing points of view for viewing by others and to reply to messages posted by others. The invention has particular application to Internet or intranet news groups and discussion groups.

Background

Computer discussion groups are well known. In such discussion groups a user can start a discussion by posting a message. The message may ask a question, express a point of view, or otherwise provide fruit for further discussion. Other users can post reply messages in reply to the message. A single message may provoke numerous reply messages. On the Internet, news groups are hosted on servers. Users run suitable client software, which may be called "news group reader" software on their computers. The client software facilitates reading the contents of news groups, posting reply messages to previously posted messages and posting messages to start new threads.

Existing news groups, discussion groups and bulletin boards have linear structures. A "thread" consists of a set of reply messages to the original message and a sequence of replies to the reply messages. Many types of news group reader software will sort messages in a news group into threads and will arrange links to the various messages so that a user can tell by viewing the links something about the sequence in which the messages were posted and which messages are replies to which other messages.

A disadvantage of existing news group reader software is that a user must view each message in a thread in order to understand the positions taken by the authors of the different messages.

The Internet has spawned a number of experiments in direct democracy. Various Internet web sites have been set up for the purpose of polling public opinion, whether on the subject of politics, consumer goods or other topics. Such sites typically provide users with the opportunity to select the one of two or more prepared statements which most closely matches the user's opinion on the topic at hand. A counter simply counts up the number of times each statement is selected. Such polls suffer from the disadvantages that the questions are pre-defined and users are forced to select one of several statements without having an opportunity to explain their positions.

A problem with Internet discussion groups is that users can post messages under pseudonyms. Therefore it is not always possible to know whether a point of view expressed in a posted message is reliable. Even worse, an Internet user can post messages which purport to be from someone else, for example a trusted public figure.

There is a need for a system which permits users of computer networks, whether those computer networks are global in nature or more localized, to better exchange ideas. There is a particular need for systems which permit users to know whether they can be confident that a posted message was really posted by the person listed as its author or whether the posted message is unverified, or even unverifiable, and could have been posted by anyone at all.

Summary of Invention

This invention provides systems for operating computer facilitated discussion groups which enable a user who posts a message to specify a group of two or more categories for sorting replies to the message. When a second user replies to a message then the second user chooses one category from the group of categories to be associated with the reply. When a user displays a message and a thread of replies to the message then the system can display the reply messages in a manner which visually distinguishes reply messages in one category from reply messages in other categories. This permits a user to understand the point of view from which a reply message is posted without needing to read the reply message itself. The system can also compute the number of reply messages associated with each category.

Preferred aspects of the invention associate verification information with each posted message. The verification information preferably specifies whether the message is unverifiable, verifiable or verified. A user can choose whether to view all messages, only verified and verifiable messages, or only verified messages. This permits the user to selectively view only messages for which the identity of the author is known, or can be discovered. Such messages are likely to be more reliable than messages posted by completely anonymous authors.

Further aspects and advantages of the invention are described below.

Brief Description of Drawings

In drawings which illustrate non-limiting embodiments of the invention,

Figure 1A is a schematic view of a computer network on which the invention may be practised;

Figure 1B is a schematic view illustrating software on server and user computers;

Figure 2 illustrates schematically a web page comprising a form for posting new messages to a server according to the invention;

Figure 3 illustrates schematically a web page comprising a form for posting a reply to a previously posted message to a server;

Figure 4 illustrates schematically a web page for displaying a thread;

Figure 5 illustrates a possible format for records of messages in a database for use in a system according to the invention;

Figure 6 is an example of a possible table returned by a query of a database;

Figure 7 is a flowchart illustrating a method for posting messages at a server according to the invention;

Figure 8 is a flowchart illustrating a method for posting replies to messages at a server according to the invention;

Figure 9 is a flowchart illustrating a method for displaying a thread of replies to a message according to the invention; and,

Figure 10 illustrates a data structure according to the invention.

Description

Figure 1 shows a computer network **10** which connects a server computer **12** to a plurality of user computers **14**. Server computer **12** typically comprises a processing unit and a memory accessible to the processing unit. Network **10** may be a global computer network such as the Internet, a local area network, a wide area network, or any other network capable of carrying data between server **12** and user computers **14**. Users of user computers **14** can forward messages to server **12**. The messages are stored at server **12**. Users of computers **14** can also view messages which have been previously posted on server **12** by themselves or others.

As shown in Figure 1B, server **12** runs web server software and has access to a plurality of stored web page templates **20**. User computers **14** run web browser software **22** capable of requesting web pages from server **12** and displaying

images of the web pages on a display **24**. Server **12** has access to a database **16** to which it can read or write information. When a user requests a web page from server **12**, the active web server software loads an appropriate one of templates **20** and, if necessary, retrieves data from database **16** to complete a web page. Server **12** then sends the completed web page to the user's computer **14** via network **10**. Web browser software **22** causes the web page to be displayed on display **24**. The general operation of web servers and web browsers is well understood to those skilled in the art and will therefore not be described here in detail.

According to this invention, users of computers **14** can post messages to server **12**. In the preferred embodiment, when a user wishes to post a message, the user causes web browser **22** to display a "new message" page from server **12**. A sample new message page **30** is shown in Figure 2. New message page **30** comprises a form into which a user can enter data via user interface **26**. The user can then cause data entered into the form to be forwarded to server **12** on network **10** by activating a "submit" button **32**.

Form **30** contains a field **34** into which a user can enter a subject for the message, a field **36** into which the user can enter text of the message, and a field **38** into which a user can specify response categories for the categorization of responses to the message. Form **30** also provides a "clear" button **40** for clearing any data entered into the fields of form **30**.

Field **38** requires a person posting a new message to server **12** to specify a set of response categories into which responses to the message will be sorted. This distinguishes the system of this invention from previous systems which permit users to post messages to a server. In the example of Figure 2, the user is required to specify a pair of response categories. The invention could, however, be practised with three or more different categories for responses. Form **30** may provide predefined descriptive titles for the categories. In addition to or instead of providing predefined category titles users may be permitted to specify their own category titles. Some examples of possible category titles where there are two categories are: FOR/ AGAINST; YES/NO; TRUE/FALSE; AGREE / DISAGREE, and so on. Some examples of possible category titles where there are three categories are: YES / MAYBE / NO; AGREE / DON'T KNOW / DISAGREE; WORSE / THE SAME / BETTER, and so on. A person posting a new message may be provided with the opportunity to specify both the number of categories into which reply messages will be sorted as well as descriptive titles for each category.

When server **12** receives data from form **30** then server **12** stores the data in database **16**. After one or more messages have been posted to server **12** then the message, or messages may be viewed. A user can view previously posted messages by navigating to a web page hosted by server **12** which displays a list of messages available for viewing. Server **12** prepares the web page by querying database **16** for a list of available messages and adding the list of available messages to a template **20**. Server **12** then sends the web page to the user's computer **14** on network **10**.

A user can signal an intention to reply to a message by, for example, selecting the subject line of the message to which the user wishes to respond with input device **26**. In response to the receipt of a signal indicating that a user wishes to reply to a message, server **12** supplies a form which requires the user to specify which one of the categories associated with the message the reply should be associated with. Figure 3 shows an example of a form **42** which may be generated by server **12** and forwarded to a user's computer **14** for the purpose of receiving a reply to a previously posted message. Form **42** is similar to form **30** with the addition of a section **44** which requires the user to select one of the response categories specified by the originator of the message being replied to. In the example of Figure 3, section **44** comprises two radio buttons, one located next to the descriptive title for each of the two possible reply categories. Section **44** could be implemented in numerous different ways. Instead of providing a single form **42** for reply messages, server **12** could first supply separate forms for requiring a user to specify a category for a reply and for providing the reply itself. What is necessary is that a user be prompted to specify one of a group of two or more categories associated with a message when replying to that message.

After a message has received one or more replies then a user **14** may view a display which shows a representation of each reply and indicates visually which of the categories each reply is associated with. Server **12** may generate such a display in the form of a web page which is delivered to a computer **14** on network **10**. This may be done by querying database **16** for all replies to a message and then inserting the result returned by database **16** into a template **20**.

Figure 4 shows one possible example of a web page **50** displaying a representation of a message **54** and representations **57** of replies to the message. In the example web page **50** of Figure 4, the original message **54** is displayed at the top of page **50** and representations **57** of replies to message **54** are displayed in a lower section **56** of page **50**. The representations **57** of replies to message **50** may be the

reply messages themselves, the time and first few words of each reply message, as shown in Figure 4, graphic icons representing the reply messages, or some other displayable representation of replies to message **54**.

Section **56** is divided into two columns **56A** and **56B**. Column **56A** contains representations of reply messages associated with the category having the descriptive title "YES". Column **56B** contains representations of reply messages associated with the category having the descriptive title "NO". The descriptive titles for the categories associated with reply messages of each column are displayed at locations **58A** and **58B** respectively.

A user viewing page **50** can immediately ascertain which reply messages are associated with which point of view. The user may view any one of the reply messages in its entirety by selecting the underlined hyperlink which comprises part of each representation **57.** The user may choose to read only reply messages which are categorized in a way which agrees with the user's point of view. If the user so chooses, the user may opt to read only reply messages which are categorized in a way which challenges the user's point of view. Server **12** can easily collect statistical information regarding the number of users on one side or another side of an issue. The number of reply messages **59A**, and **59B** in each category may be displayed at the head of each of columns **56A** and **56B**.

There are alternative ways to achieve a display having the general appearance of page **50** any of which may be used in the invention. For example, section **56** may comprise two frames located side-by-side, each displaying representations of reply messages associated with a particular category. Other formats of display may also be used to practice the invention. For example, instead of being located in different portions of a display, representations of reply messages associated with different categories could be colored or given different appearances to indicate which category they are associated with.

In the alternative to server **12** formatting a web page containing representations of replies to a message, server **12** could send to user computer **14** a set of records describing each of the reply messages in a thread and specifying the category associated with each reply message. In place of, or in addition to web browser software, user computers **14** could run software which receives such records and prepares and formats a display which shows representations of each reply displayed in such a way that reply messages in each category in the group of categories associated with the message being replied to are visually distinguished from one another.

Database **16** may be replaced with any sort of memory of storage device into which server **12** can store and retrieve data. Database **16** is not limited to traditional "database" software. Database **16** is preferably a relational database. Figure 5 shows a possible structure for records of messages in database **16**. The **indx** field contains a unique number which identifies each message. The **thread_id** field holds a NULL value in messages which do not reply to any other message. In the records for messages which reply to a previous message the **thread_id** field holds the value of the **indx** field for the previous message being replied to. Also, in the records for messages which reply to a previous message the **category_#** field identifies one category (as specified in the record for the message being replied to) with which the message is associated. The **subject** field contains the text of the subject of the message. The **discussion** field contains the text of the discussion. The fields **category#1_title**, **category#2_title** contain descriptive titles for the categories into which replies to the message must be categorized. If more than two categories are permitted then there will be additional fields specifying descriptive titles for the additional categories and, where convenient, a field specifying the number of categories. The **msg_stamp** field contains a time and date stamp for the message. The **author** field contains the name of the message's author.

It can be appreciated that as the invention is used, database **16** will come to contain a data structure in which records for individual messages are linked to one another in a manner which indicates both which messages are included in a thread and the stance being taken in replies to an original posting. Figure 10 shows an example of a data structure **116**. Data structure **116** contains records **117** in three threads **119**. Each thread **119** consists of a record **117A** for an originating message which replies to no other message, and zero or more records **117B** for replies to either the originating message or to replies to the originating message. Records **117A** may be called "originating records". Records **117B** may be called reply records. Each record **117** specifies two or more categories **120** into which replies to the corresponding message must be classified. Each reply record **117B** includes pointers **121** which identify both the message **117** being replied to and a category with which the reply record is associated. Data structure **116** is useful because it facilitates the automatic extraction of useful data from data structure **116** in a manner that would not be possible with conventional newsgroups or the like.

When server **12** receives a signal which indicates that a user wishes to display a thread, for example, as shown in Figure 4, then server **12** queries database **16** to retrieve the original message (using the value of the **indx** field for the

original message) and to retrieve a table containing all other messages for which the **thread_id** field has the same value as the **indx** field of the original message. An example of a table **59** which might be returned by such a query is shown in Figure 6.

Server **12** retrieves the messages in table **59** one at a time depending upon the value in the **category** field server **12** places a representation of each message either in left hand column **56A** of page **50** or in right hand column **56B** of page **50**.

Figure 7 is a flow chart illustrating a method **60** for receiving and posting messages on a server according to the invention. At step **62** server **12** receives a signal containing a request by a user to post a new message. Such a signal may be generated at a user computer **14** when a user activates a "new message" button on a web page generated by server **12**. At step **64** server **12** prepares and forwards to the user computer **14** a form **30**. At step **66** user computer **14** receives and displays the form **30** on display **24**. As noted above, form **30** requires a user to specify categories into which replies to the message will be sorted. At steps **68** and **69**, which may be completed in any order, the user specifies categories for replies to the message and inputs a subject and text for the message. In the example given above this is done by filling in form **30.** At step **70** user computer **14** forwards the data input into form **30** to server **12** on network **10.** At step **72** the data is received at server **12**. At step **74** the data, including the response categories is saved by server **12** in database **16**.

Figure 8 illustrates a method **80** for posting reply messages to a previously posted message. At **82** server **12** receives a request from a user computer **14** indicating that a user wishes to post a reply to a message. Such a signal may be generated at a user computer **14** when a user activates a "reply" button on a web page generated by server **12** or activates a hot spot connected to a reply function. At **84** server **12** prepares a reply form. To do this, server **12** retrieves from database **16** the descriptive titles for each category in the group of categories associated with the message being replied to. At step **86** user computer **14** receives and displays the form, for example, form **42**. The form forces the user to select one category from the group of categories into which the reply will be categorized. Steps **88**, **89** and **90** may be completed in any order. these steps may be completed, for example, by allowing a user to complete a form **42** using an input device **26**. At step **92** user computer **14** forwards data from the completed form **42** to server **12** over network **10**. At step **96** server **12** stores a record of the reply in database **16**.

Figure 9 is a flowchart which illustrates a method **100** for displaying a thread according to the invention. When server **12** receives a signal indicating that a user wishes to see a display of a thread (step **102**) then server **12** queries database **16** for reply messages belonging to the thread at step **104**. At step **106** server **12** sorts the reply messages by category. At step **108** server **12** assembles a web page from a template **20** and the sorted reply messages. On the web page, reply messages which are in different categories are visually distinguished from one another. This may be done, for example, by displaying representations of reply messages which are associated with different categories in physically separate parts of the web page, using a different icon to represent reply messages in different categories, providing a different color attribute for representations of reply messages in different categories. It is preferred to display representations of the reply messages in physically separated parts of the web page image. At step **110** server **12** sends the web page to user computer **14** on network **10**. User computer **14** receives the web page at step **112** and displays the web page on display **24** at step **112**.

The methods, systems and data structures of the invention may be enhanced by providing verification functions which allow users to assess the credibility of posted messages. Internet users can post messages anonymously or under pseudonyms. In a preferred embodiment of the invention, each message in database **16** includes information specifying whether or not the message is "verifiable". Most preferably, database **16** categorizes each message as being one of "unverifiable", "verifiable" and "verified". Unverifiable messages are messages posted anonymously. It is not readily possible to determine who is the author of an unverifiable message or, if the person posting the message has provided a name, whether that name is the person's real name. Verifiable messages are messages for which the user posting the message has provided sufficient information about themselves that the true name of the user posting the message could be ascertained and the user posting the message could be contacted to verify the accuracy of the posted message. A verified message is a message for which the true name of the user posting the message has been ascertained and the accuracy of the contents of the message has been verified.

Verification may be conducted automatically by server **12** by sending an e-mail message to a known e-mail address for a particular user and receiving a reply to the e-mail message. For example, consider the case where a message purporting to be from the president of the United States has been posted to server **12**. Server **12** could automatically generate an e-mail to the known e-mail address

for the president, *president@whitehouse.gov* seeking confirmation that the president was, in fact, the originator of the posted message. The Server **12** could mark the message as being "verified" upon receiving such a validation. Verification could also be done manually. Once a message has been verified, users of server **12** can see that the message has been verified and can trust that the message was posted by someone known to the operators of server **12** and, if the name of an author is given, that the named author is responsible for the content of the posted message.

In a preferred embodiment of the invention, users who wish to view the messages posted on server **12** can specify whether they wish to see all posted messages, only messages which are either verifiable or verified, or only verified messages. If the user signals to server **12** that the user wishes to view all posted messages, or both verifiable and verified messages then preferably each message displayed on a page **50** or other display, are somehow marked to indicate whether the message is unverifiable, verifiable or verified. For example, different colors may be used to display a representation of each of these types of message or a small icon could be presented as part of the representation of each message, the icon indicating the verification status of the message.

A field indicating whether or not each message in a database of posted messages can be, or is, verified could be provided and used in conjunction with any database of posted messages. The application of this inventive feature is not limited to methods and systems which provide multiple categories for reply messages as described above.

It can be appreciated that by including in database **16** verification information specifying whether each message is unverified, verified or verifiable, a user reading messages from database **16** can determine how much trust to place in each message.

Preferably users who post messages to server **12** may select whether or not to allow their names to be made public as the authors of messages by sending a signal to server **12**. If the signal indicates that the name of the author of a message should be made public then the author's name is forwarded on the communication network together with the message to other users who wish to view the message. In a preferred embodiment of the invention, users who view messages posted on server **12** can choose whether they wish to view only messages for which the name of the person posting the message is displayed or whether they are willing to also view messages for which the name of the user who posted the message will not be provided to them.

While the invention has been described above as being embodied in a computer network in which the methods of the invention are carried out, the invention could also be embodied in a computer readable storage medium such as a floppy disc, a CD ROM, a DVD, or some other physical carrier of computer readable instructions upon which is stored computer instructions which, when executed on a computer will cause the computer to operate so as to carry out any method of the invention.

As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. While the invention has been described with reference to a system wherein communications between users and a server are mediated by web browsers which communicate with a web server, this is not necessary. Computers **14** could communicate with server **12** using a different protocol than is used for the exchange of web pages. The way in which server **12** stores and retrieves messages and the structure of database **16** can be varied significantly without departing from the invention. There are a multitude of data structures capable of recording associations between a message and a group of reply categories and between a reply and a category. The displays depicted in the figures are by way of illustration only. There are many alternative ways to display replies to messages in a way which allows a user to see how the replies have been categorized. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

WHAT IS CLAIMED IS:

1. A computer implemented method for managing a discussion, the method comprising, at a computer connected to a communications network:
   a) receiving a first message by way of the communications network;
   b) associating the first message with a group of two or more response categories;
   c) receiving one or more reply messages in reply to the first message by way of the communication network, each of the one or more reply messages associated with one of the two or more response categories; and,
   d) forwarding to a user on the communication network the first message and one or more of the reply messages;
   wherein forwarding the one or more of the reply messages to the user comprises indicating to the user one of the two or more categories with which each of the one or more reply messages is associated.
2. The method of claim 1 comprising, associating with each of the first message and the reply messages verification information specifying whether the first message and reply messages are unverifiable or verifiable wherein forwarding the first message and reply messages to the user comprises indicating to the user whether each of the first message and the one or more of the reply messages are verifiable.
3. The method of claim 1 comprising, associating with each of the first message and the reply messages verification information specifying whether the first message and reply messages are verified.
4. The method of claim 3 comprising receiving from a user a signal indicating that the user wishes to view only verified postings, wherein forwarding to a user on the communication network the first message and the one or more of the reply messages comprises forwarding to the user only those reply messages associated with verification information specifying that the reply messages are verified.
5. The method of claim 1 wherein receiving the first message comprises receiving a signal indicating whether or not to make public a name of an author of the message wherein forwarding the first message to a user comprises forwarding a name of an author of the message if the signal indicates that the name of the author of the message should be made public.

6. A computer implemented method for managing a discussion, the method comprising, at a computer connected to a communications network:
   a) receiving a first message by way of the communications network;
   b) associating the first message with a group of two or more response categories;
   c) receiving one or more reply messages in response to the first message by way of the communication network, each of the one or more reply messages associated with one of the two or more response categories; and,
   d) formatting and forwarding to a user on the communication network a display comprising elements representing the first message and elements representing one or more of the reply messages, the display indicating one of the two or more categories with which each of the one or more reply messages is associated.

7. The method of claim 6 wherein receiving a first message comprises forwarding a web page comprising a form to a user and receiving data input by the user into the form by way of the communications network.

8. The method of claim 7 wherein the data input by the user comprises a number of categories.

9. The method of claim 7 wherein the data input by the user comprises a descriptive name for each of two or more categories in the group of two or more categories.

10. The method of claim 7 wherein receiving one or more reply messages comprises receiving a request to post a reply message by way of the communications network, in response to the request forwarding to a user a form, the form requiring the user to select one category from the group of categories to be associated with the reply message, and receiving data entered into the form by a user, the data comprising the category selected by the user.

11. The method of claim 10 wherein forwarding to the user the form comprises retrieving from a database a descriptive title for each category in the group of categories and writing the descriptive titles to the form.

12. The method of claim 6 wherein the elements representing the reply messages are arranged in columns on the display and each column corresponds to one response category in the group of response categories.

13. The method of claim 6 wherein the elements associated with the reply messages have a first color for reply messages associated with a first response category in the group of response categories and the elements have a second color for reply messages associated with a second response category in the group of response categories.

14. The method of claim 6 comprising, associating with each of the first message and the reply messages verification information specifying whether the first message and reply messages are unverifiable or verifiable wherein formatting the display comprises selecting for display only reply messages for which the verification information indicates that the reply messages are verifiable.

15. A method for retrieving and displaying messages in a discussion group, the method comprising, in a programmed computer:

a) receiving on a communications network a first message, one or more reply messages in reply to the first message, data specifying two or more response categories and data indicating one of the two or more categories with which each of the reply messages is associated;

b) displaying on a display associated with the computer a representation of the first message and representations of a plurality of the reply messages;

wherein displaying the representations of each of the plurality of the reply messages comprises visually marking the representation of the reply message so as to indicate the category with which the reply message is associated.

16. The method of claim 15 wherein visually marking the representations of the reply messages comprises providing a separate window on the display for each of the plurality of categories and displaying the representation of each reply message in the window associated with the category of the reply message.

17. The method of claim 16 wherein there are two categories, a first category and a second category.

18. The method of claim 17 wherein visually marking the representation of the reply messages comprises providing a first window in a left hand side portion of the display and a second window in a right hand side portion of the display, displaying reply messages associated with the first category in the first window and displaying reply messages associated with the second category in the second window.

19. The method of claim 18 comprising displaying the reply messages in each of the windows in a chronological order of posting.

20. The method of claim 15 comprising providing a plurality of columns on the display, each column corresponding to one of the categories, wherein displaying the representation of each reply message comprises displaying the representation of the reply message in a column corresponding to the category associated with the reply message.

21. The method of claim 20 comprising arranging the representations of the reply messages within each of the columns in order of posting of the reply messages.

22. The method of claim 21 comprising arranging the representations of all of the reply messages in order of posting of the reply messages.

23. The method of claim 16 comprising, for each of the categories, displaying on the display a descriptive title for the category in a position corresponding to the window associated with the category.

24. The method of claim 15 wherein visually marking the representations of the reply messages comprises displaying the representations of reply messages associated with different categories in different colors and displaying representations of reply messages associated with the same category in the same color.

25. A data structure stored in a computer readable medium, the data structure comprising:

a) at least one originating record corresponding to a message posted by a user, the originating record comprising fields indicating at least two reply categories for messages in reply to the message;

b) a plurality of reply records each corresponding to a reply message posted by a user in reply to another message, each of the reply messages including a pointer to a record for a message being replied to and a pointer indicating one of the at least two reply categories of the message being replied to with which the reply message is associated.

26. The data structure of claim 25 wherein the reply records each comprise verification information indicating whether or not the reply message has been verified.

27. A computer system comprising:

a) a central processing unit;

b) a memory accessible by the central processing unit; and,

c) a data structure as recited in claim 17 resident in the memory.

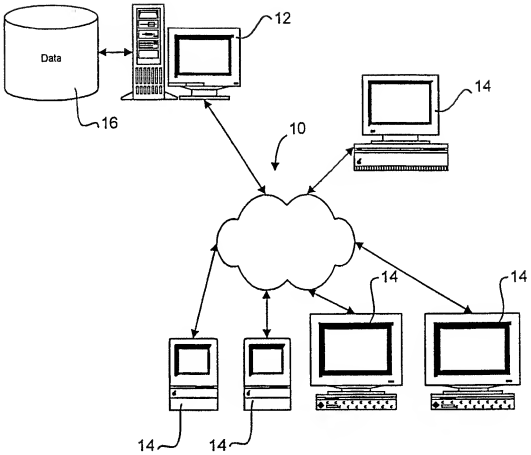

FIG 1A

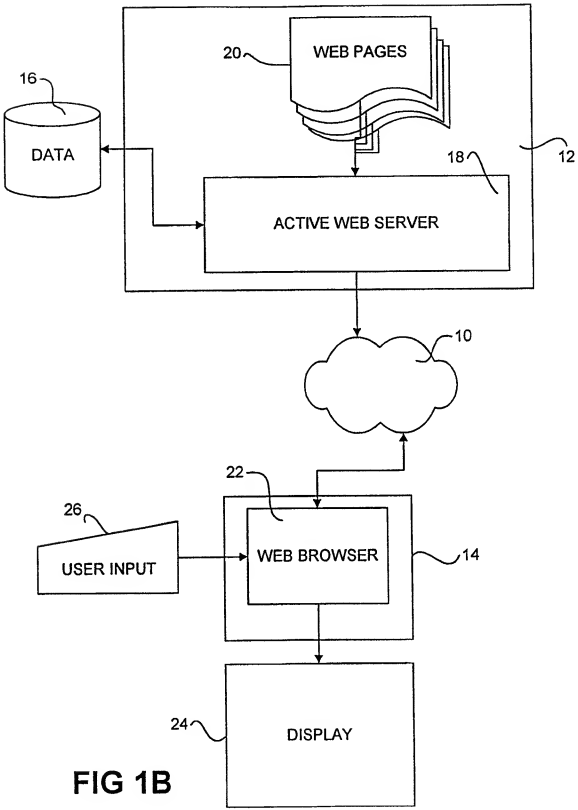
WEB PAGES
20
16
DATA
18
12
ACTIVE WEB SERVER
10
22
26
USER INPUT
WEB BROWSER
14
24
DISPLAY

FIG 1B

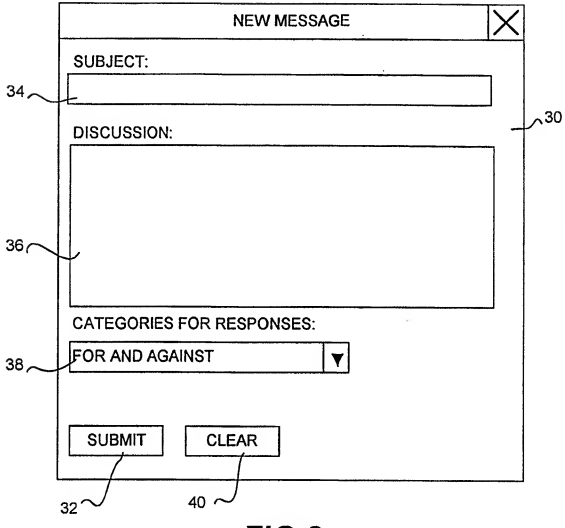
NEW MESSAGE
SUBJECT:
34
30
DISCUSSION:
36
CATEGORIES FOR RESPONSES:
38
FOR AND AGAINST
SUBMIT
CLEAR
32
40

FIG 2

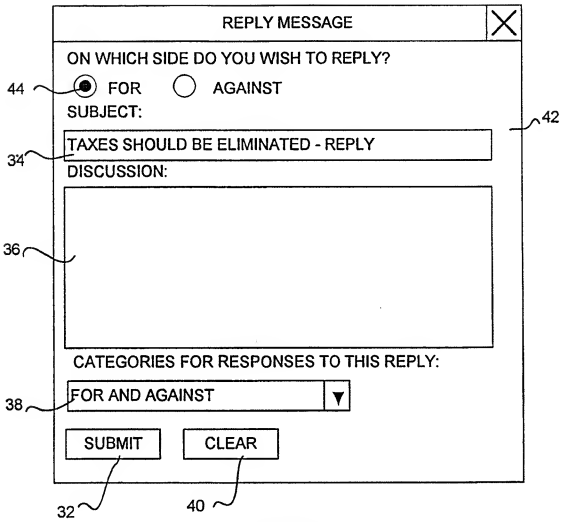
REPLY MESSAGE
ON WHICH SIDE DO YOU WISH TO REPLY?
44
FOR
AGAINST
SUBJECT:
42
34
TAXES SHOULD BE ELIMINATED - REPLY
DISCUSSION:
36
CATEGORIES FOR RESPONSES TO THIS REPLY:
38
FOR AND AGAINST
SUBMIT
CLEAR
32
40

FIG 3

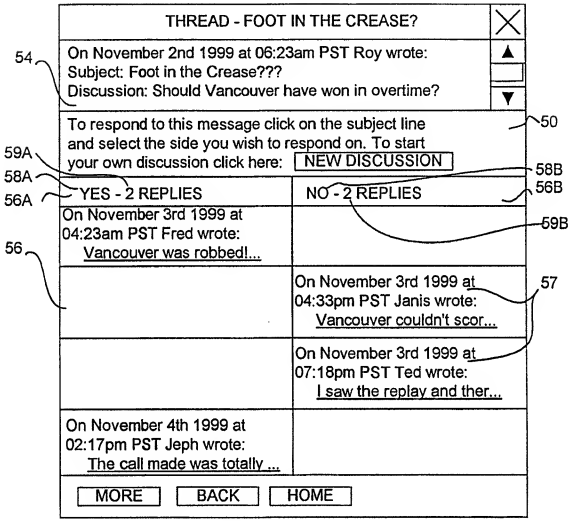
THREAD - FOOT IN THE CREASE?
54
On November 2nd 1999 at 06:23am PST Roy wrote:
Subject: Foot in the Crease???
Discussion: Should Vancouver have won in overtime?
To respond to this message click on the subject line and select the side you wish to respond on. To start your own discussion click here: NEW DISCUSSION
50
59A
58A
58B
56A
56B
YES - 2 REPLIES
NO - 2 REPLIES
59B
56
On November 3rd 1999 at 04:23am PST Fred wrote:
Vancouver was robbed!...
On November 3rd 1999 at 04:33pm PST Janis wrote:
Vancouver couldn't scor...
57
On November 3rd 1999 at 07:18pm PST Ted wrote:
I saw the replay and ther...
On November 4th 1999 at 02:17pm PST Jeph wrote:
The call made was totally ...
MORE
BACK
HOME

FIG 4

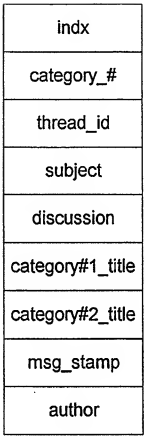
indx
category_#
thread_id
subject
discussion
category#1_title
category#2_title
msg_stamp
author

FIG 5

indx	category	thread_id	subject	discussion	category#1_title	category#2_title	msg_stamp	author
63	#1	62	Foot in the crease???	Vancouver was robbed !!!. There was no way that goal didn't go in.	YES	NO	19991103042304	Fred
64	#2	62	Foot in the crease???	Vancouver couldn't score a goal if it tried. Vancouver would have lost anyway.	AGREE	DISAGREE	19991103163311	Janis
65	#2	62	Foot in the crease???	I saw the replay and there was a foot in the crease.	TAKE IT	LEAVE IT	19991103191821	Ted
66	#1	62	Foot in the crease???	The call made was totally unfair. The ref couldn't possibly have seen a foot in the crease from where he was standing.	YES	NO	19991104141753	Jeph

59

FIG 6

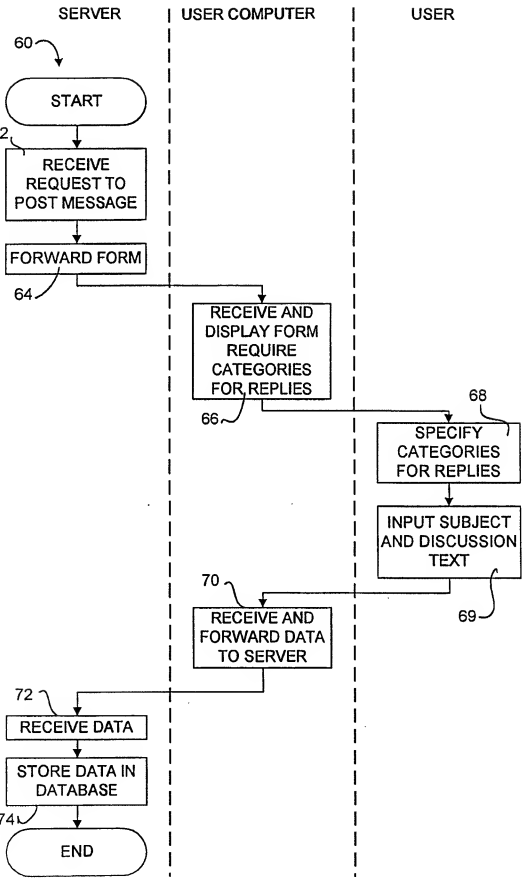
SERVER
USER COMPUTER
USER
60
START
62
RECEIVE REQUEST TO POST MESSAGE
FORWARD FORM
64
RECEIVE AND DISPLAY FORM REQUIRE CATEGORIES FOR REPLIES
66
68
SPECIFY CATEGORIES FOR REPLIES
INPUT SUBJECT AND DISCUSSION TEXT
69
70
RECEIVE AND FORWARD DATA TO SERVER
72
RECEIVE DATA
STORE DATA IN DATABASE
74
END

FIG 7

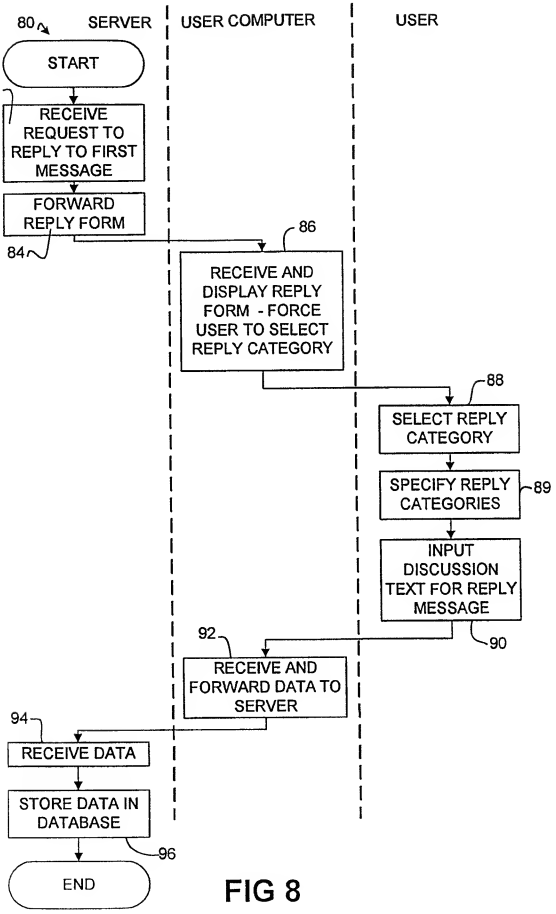
80
SERVER
USER COMPUTER
USER
START
82
RECEIVE REQUEST TO REPLY TO FIRST MESSAGE
FORWARD REPLY FORM
84
86
RECEIVE AND DISPLAY REPLY FORM - FORCE USER TO SELECT REPLY CATEGORY
88
SELECT REPLY CATEGORY
SPECIFY REPLY CATEGORIES
89
INPUT DISCUSSION TEXT FOR REPLY MESSAGE
90
92
RECEIVE AND FORWARD DATA TO SERVER
94
RECEIVE DATA
STORE DATA IN DATABASE
96
END

FIG 8

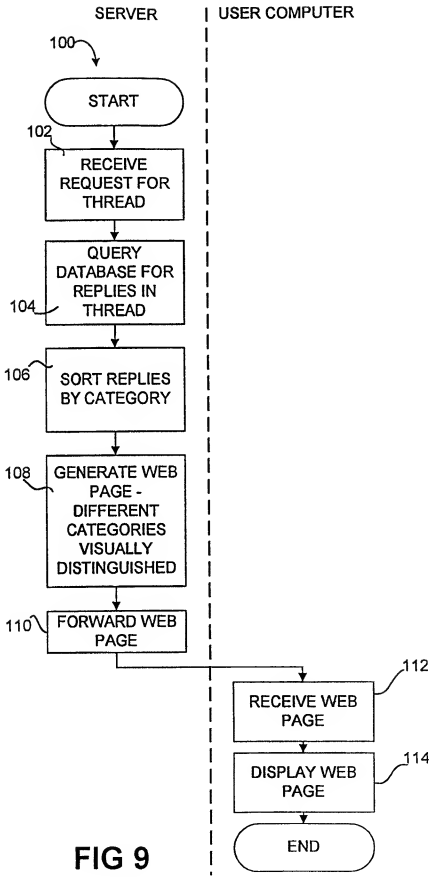
SERVER
USER COMPUTER
100
START
102
RECEIVE REQUEST FOR THREAD
QUERY DATABASE FOR REPLIES IN THREAD
104
106
SORT REPLIES BY CATEGORY
108
GENERATE WEB PAGE - DIFFERENT CATEGORIES VISUALLY DISTINGUISHED
110
FORWARD WEB PAGE
112
RECEIVE WEB PAGE
114
DISPLAY WEB PAGE
END

FIG 9

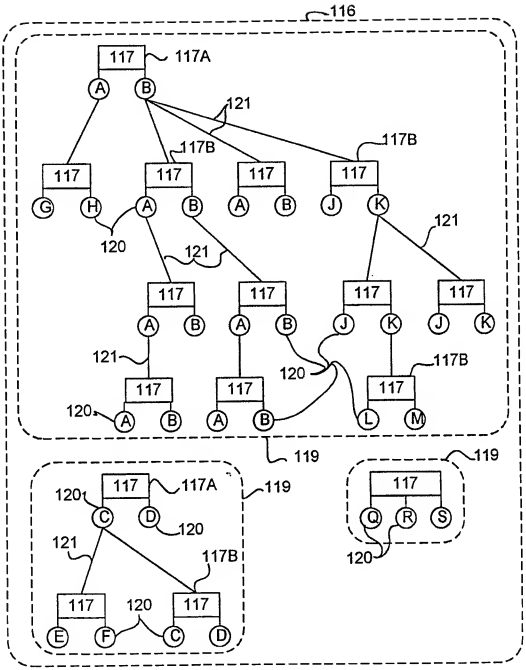
116
117
117A
A
B
121
117B
117
117
117
117
G
H
A
B
A
B
J
K
120
121
121
117
117
117
117
A
B
A
B
J
K
J
K
121
117B
120
117
117
117
120
A
B
A
B
L
M
119
119
117
117A
119
120
C
D
120
121
117B
117
120
117
E
F
C
D
117
Q
R
S
120

FIG. 10